



Feb 15 9 32 AM '01

February 13, 2001

Mr. Chuck Schwer
Sites Management Section
VTDEC WMD
103 South Main St./ West Bldg.
Waterbury, VT 05671-0404

RE: Monitoring of Subsurface Petroleum Contamination at Burlington Mitsubishi (formerly Mountainview Mitsubishi), South Burlington, VT (VTDEC Site # 99-2633)

Dear Mr. Schwer:

Enclosed please find the report on the initial site investigation conducted at the above referenced site. Mr. Norman Pecor of Pecor Auto Sales requested that a copy be forwarded to you for your review.

Please do not hesitate to call, if you have any questions or comments.

Sincerely,

Beth Eliason
Environmental Engineer

Enc.

cc: GI #89941594

**INITIAL INVESTIGATION OF SUSPECTED
SUBSURFACE PETROLEUM CONTAMINATION
AT BURLINGTON MITSUBISHI
(FORMERLY MOUNTAINVIEW MITSUBISHI)**

January 2001

Site Location:

**Burlington Mitsubishi
1835 Shelburne Road
South Burlington, VT**

**VTDEC Site #99-2633 (formerly Site #88-0285)
GI Project #89941594**

Prepared For:

**Pecor Auto Sales
P.O. Box 132
Essex Junction, VT 05453**

Prepared By:



P.O. Box 943 / 20 Commerce Street Williston, VT 05495 (802) 865-4288

TABLE OF CONTENTS

I. INTRODUCTION.....	1
II. SITE BACKGROUND	1
A. Site History	1
B. Site Description.....	2
C. Site Geologic Setting	2
III. INVESTIGATIVE PROCEDURES.....	3
A. Monitoring Well/Soil Boring Installation	3
B. Determination of Groundwater Flow Direction and Gradient.....	4
C. Groundwater Sample Collection and Analysis.....	4
D. Sensitive Receptor Risk Assessment.....	5
IV. CONCLUSIONS	6
V. RECOMMENDATIONS.....	7
VI. REFERENCES.....	7

APPENDICES

A. MAPS

- 1) Site Location Map
- 2) Area Map
- 3) Site Map
- 4) Groundwater Elevation Map
- 5) Contaminant Concentration Map

B. BORING LOG AND WELL CONSTRUCTION DIAGRAMS

C. LIQUID LEVEL MONITORING DATA

D. GROUNDWATER QUALITY SUMMARY DATA

E. LABORATORY ANALYSIS REPORTS

I. INTRODUCTION

This report summarizes the initial investigation of suspected subsurface petroleum contamination at the Burlington Mitsubishi facility (formerly Mountainview Mitsubishi), located at 1835 Shelburne Road/Route 7 in South Burlington, VT (see the Site Location Map in Appendix A). This investigation was conducted by Griffin International, Inc. (Griffin) for Pecor Auto Sales to address petroleum contamination detected during an underground storage tank (UST) closure inspection associated with one motor oil UST and one waste motor oil USTs in June 1999. The Vermont Department of Environmental Conservation (VTDEC) requested that this work be completed in a letter to Mr. Norman Pecor of Pecor Auto Sales from Ms. Janet Gordan of the VTDEC dated August 2, 1999. The site (VTDEC Site #99-2633) is owned by Pecor Auto Sales.

Scheduled efforts consisted of the following:

1. The installation of one monitoring well and one soil boring;
2. The collection and laboratory analysis of groundwater samples from three (3) existing groundwater monitoring wells and the newly installed monitoring well;
3. Sensitive receptor survey;
4. Preparation of a summary report (this document).

This work was conducted in accordance with Griffin's *Work Plan and Cost Estimate for Investigation of Subsurface Petroleum Contamination at Mountainview Mitsubishi* [1] dated August 1999. The work plan was approved by Mr. Norman Pecor of Pecor Auto Sales in a telephone conversation with Griffin on September 20, 1999, and by Mr. Chuck Schwer of the VTDEC in a letter to Mr. Pecor dated February 18, 2000.

II. SITE BACKGROUND

A. Site History

Subsurface petroleum contamination was detected in soil at the subject site during the permanent closure of two USTs on June 2, 1999. UST#1, located on the north side of the garage, had a capacity of 1,000-gallons, and was used to store motor oil. UST #1 was buried approximately four feet below grade and extended beneath the concrete floor of the garage. UST #1 was closed in-place. Volatile organic compound (VOC) concentrations, measured with an HNuTM Model HW-101 photoionization detector (PID) equipped with a 10.2 eV bulb, ranged from 0 parts per million (ppm) to 68 ppm in the excavation for UST#1 [1]. Impacted soils were located along the northern end of the closed-in-place UST.

UST #2, with a capacity of 1,000-gallons, was used to store waste oil. UST #2 was removed from the site. VOC concentrations in the excavation for UST #2 ranged from 0 to 1 ppm. Two composite soil samples were collected from the excavation and submitted for laboratory analysis



for VOCs via EPA Method 8240, and for total petroleum hydrocarbons (TPH) via EPA Method 8100 Modified. None of the compounds targeted by these analyses were detected above method detection limits.

? results for 8240 submitted; TPH not received

Soils at the site consisted of dark brown, fine to coarse, silty sand with some gravel and a trace of cobbles from approximately one foot below grade to the extent of each excavation. Additional information regarding the UST closure can be found in Griffin's June 8, 1999 *Mountainview Mitsubishi UST System Closure Inspection* report [1].

Five existing groundwater monitoring wells were observed on the subject property during the UST closure inspection, and during monitoring well installation. According to the property owner, these wells were installed as part of a site investigation conducted following the removal of gasoline USTs from the site. According to the VTDEC Closed Sites database [2], the site (VTDEC Site #88-0285) was closed, with no further action planned (NFAP). Additional information regarding previous activities at the site are on file at the VTDEC offices in Waterbury, VT.

This investigation was conducted to define the extent and degree of residual petroleum contamination remaining in the subsurface at the site related to the former 1,000-gallon motor oil UST.

B. Site Description

The subject property is located on the west side of Shelburne Road/Route 7 in South Burlington, VT (see Site Location Map in Appendix A). The site is operated as an auto dealership and maintenance garage. Soils in the vicinity of UST #1 are covered by asphalt. Sod and vegetative matter covered the soils in the vicinity of UST#2 (see Site Map).

One 500-gallon No. 2 fuel oil UST remains in use at the site (see Site Map). The UST is used to store fuel oil for on-premises heating.

Properties immediately surrounding the site are used for commercial purposes. The nearest surface water is an unnamed stream, located approximately 700 feet north of the site. Lake Champlain is located approximately 1,500 feet west of the site. The subject property is serviced by municipal water and sewer. Municipal water is supplied by the Champlain Water District, the water source is Lake Champlain. Municipal sewer discharges to the City of South Burlington Municipal Sewer system. There are no known public or private water supply wells within a half-mile radius of the site, based on visual observation.

C. Site Geologic Setting

According to the Surficial Geologic Map of Vermont [3], the site is underlain by lake bottom sediments consisting of silt, silty clay, and/or clay containing ice rafted boulders. Soils

encountered during monitoring well installation consisted of sand, silty sand, and lean clay with sand. Bedrock at the site is mapped as Monkton Quartzite[4].

III. INVESTIGATIVE PROCEDURES

A. Monitoring Well/Soil Boring Installation

On November 15, 2000 one shallow monitoring well and one soil boring was installed by Adams Engineering of Underhill, Vermont, using a vibratory drill rig. Drilling and well construction were directly supervised by a Griffin engineer. Soil samples were collected continuously from each boring. Each soil sample was screened for volatile organic compounds (VOCs) using a HNu Model PI-101 PID equipped with a 10.2 eV bulb. Soils were screened using the Griffin Jar/Polyethylene Bag Headspace Screening Protocol, which conforms to state and industry standards. Contaminant concentrations and soil characteristics were recorded in detailed boring logs by the supervising Griffin engineer (see the Well Logs in Appendix B).

The monitoring well and soil boring (MW1 and SB2) were installed to define groundwater flow direction and gradient and the degree and extent of suspected petroleum contamination at the site in the vicinity of UST #1.

MW1 was constructed of 1.5-inch diameter Schedule 40 PVC riser and 0.010-inch factory slotted, well screen. The annulus between the well screen and the borehole was filled with a sand pack to 1-foot above the well screen. A bentonite seal was placed above the sand pack. To complete the construction of each well, a road box was set at grade level. In addition, locking well caps were placed on the monitoring wells. Specific well construction details are displayed in the detailed well log included in Appendix B.

MW1

The boring for MW1 was advanced to 12.5 feet below grade. Soils from the boring from MW1 consisted of dry, black, lean clay with sand from 0 to 4.5 feet below grade. Dry, black, silty sand was observed between 4.5 and 6 feet below grade. Wet, well-graded, gray sand was observed from 6.5 to 8.5 feet below grade. Soils from 8.5 to 12.5 feet below grade consisted of dry clay. Soil samples collected for PID screening contained VOC concentrations ranging from non-detectable to greater than 200 parts per million (ppm). Petroleum odors were observed in the boring for MW1. The maximum PID readings were measured in the wet, well-graded sands between 6 and 8.5 feet below grade.

Groundwater was encountered at approximately 7 feet below grade. The screened section of the well was installed from 2.5 to 12.5 feet below the ground surface.

SB2

The boring for SB2 was advanced to 10 feet below grade. Soils from the boring consisted of dry to moist, brown gray, silty sand from 0 to 5 feet below grade. Moist, gray, lean clay with sand was observed between 5 and 5.5 feet below grade. Soils between 5.5 and 7.5 feet below grade consisted of wet, gray, clayey sand. Moist to wet, black, poorly graded sand was observed between 7.5 and 8 feet below grade. Wet, gray, well-graded sand was observed from 8 to 9 feet below grade. Soils between 9 and 10 feet below grade consisted of dry, brown, lean clay with sand. Petroleum odors were observed in this boring. Soil samples collected for PID screening contained VOC concentrations ranging from 5 ppm to greater than 200 ppm.

Groundwater was encountered at approximately 6 feet below grade. The boring was not completed as a monitoring well.

B. Determination of Groundwater Flow Direction and Gradient

Water table elevation measurements were collected from six monitoring wells (EMW1 through EMW5, and MW1) on December 1, 2000 using a Keck™ interface probe. Depth to water measurements were subtracted from the top of casing elevations, which were determined relative to an arbitrary datum of 100 feet at the top of the casing for MW1, in order to calculate the water table elevation at each of the wells. Groundwater level data are recorded in Appendix B.

As displayed in the groundwater elevation map included in Appendix A, groundwater elevations vary significantly across the site, with a high point in the vicinity of EMW1, and a low point in the vicinity of EMW4. Because of the wide range of groundwater elevations measured, and because the construction details of the five existing on-site monitoring wells are not known, a groundwater contour map representing groundwater flow in the vicinity of the site was not developed. The boring log for MW1 indicates that sands and silty sands beneath the site are overlain by lean clay with sand, which may indicate a confined aquifer at the site. Without the construction details for the monitoring wells previously installed at the site, it is not known whether the existing monitoring wells are screened straddling or beneath the confining clay layer, which could influence interpretation of groundwater elevation data.

Based on the topographic map [5] of the site area, regional groundwater flow is estimated to be directed to the west toward Lake Champlain. Based on the presumed direction of groundwater flow, EMW1 is downgradient of the source area, EMW2, EMW3, and EMW4 are located crossgradient of the source area, and EMW5 is located upgradient of the source area.

C. Groundwater Sample Collection and Analysis

Groundwater samples were collected from four of the six monitoring wells (MW1 ; EMW1, EMW2, EMW3) following well gauging on December 1, 2000. EMW4 and EMW5 were not

sampled, as sampling of these wells was not included in the August 1999 Work Plan [1]. Samples were analyzed for the presence of VOCs per EPA Method 8021B, and for TPH via EPA Method 8015 DRO. Results of the laboratory analyses are summarized in Appendix C. Duplicate and trip blank samples were collected and submitted for analysis per EPA Method 8021B.

None of the compounds targeted by the analyses were detected in excess of laboratory detection limits in the sample collected from monitoring well EMW2. Select petroleum constituents were detected in MW1, EMW1, and EMW3 at concentrations exceeding Vermont Groundwater Enforcement Standards (VGES). Free product was not measured in any of the monitoring wells.

Samples were collected according to Griffin's groundwater sampling protocol, which complies with industry and state standards. Results from the analyses of the trip blank and duplicate samples indicate that adequate quality assurance and control (QA/QC) were maintained during sample collection and analysis.

D. Sensitive Receptor Risk Assessment

A receptor risk assessment was conducted to identify known and potential receptors of contamination at Burlington Mitsubishi. A visual survey was conducted during the UST closure inspection in June 1999 and again during monitoring well installation in November 2000. Based on these observations, a determination of the potential risk to identified receptors was made based on proximity to the expected source area (i.e., the closed-in-place motor oil UST), groundwater flow direction, and contaminant concentration levels in soil and groundwater.

Water Supplies

Burlington Mitsubishi and the surrounding commercial businesses are served by the municipal water supply. Water for the municipal system is provided from Lake Champlain. Due to the significant distance from the site to this municipal water source, there is likely little risk posed to area drinking water by the subject site.

Buildings in the Vicinity

The Burlington Mitsubishi garage is constructed on a concrete slab foundation. Since this building does not contain a basement, there is likely minimal risk of petroleum vapor migration posed to garage from the source area. The surface above the former motor oil UST (UST#1) is paved, reducing the potential for exposure to the petroleum compounds through dermal contact with soils or inhalation of vapors.

The building housing the auto showroom is a two-story building, the lower level is partially below grade, with a walk-out basement. The showroom building is located topographically upgradient of the source area, and is likely at minimal risk of petroleum vapor migration from the source area.

The majority of the buildings in the vicinity of the site are of slab on-grade construction. Area buildings are considered at minimal risk from the on-site petroleum contamination given their separation distance from the source area.

Surface Water

The nearest surface water is an unnamed stream, located approximately 700 feet north of the site. Lake Champlain is located approximately 1500 feet west of the site. The stream is located in a topographically crossgradient direction, and is likely at minimal risk of petroleum impact from the site. Lake Champlain is located in a topographically downgradient direction with respect to the site. Lake Champlain is considered at minimal risk of petroleum impact from the site, given its distance from the subject site.

Utility Corridors

The area surrounding Burlington Mitsubishi is serviced by municipal water and sewer. The depth to groundwater in the vicinity of the site is approximately 2 to 5.5 feet below ground level, coincident with average utility depths (typically 4 to 5 feet below surface grade). Therefore, there is potential for contaminant migration via any utility corridors which may be located along Nesti Road. This risk is considered minimal considering the distance of the source area from Nesti Road.

IV. CONCLUSIONS

Based on this site investigation of petroleum contamination at Burlington Mitsubishi, the following conclusions are offered:

1. VOC concentrations observed in site soils during a UST closure inspection in June 1999 indicated the presence of adsorbed petroleum compounds in the vicinity of a closed-in-place motor oil UST. Measured VOC concentrations ranged from 0 to 68 ppm.
2. VOC concentrations measured during soil boring/monitoring well installation in November 200 indicated the presence of adsorbed petroleum compounds; VOC concentrations ranged from nondetectable to greater than 200 ppm.
3. As displayed in the groundwater elevation map, groundwater elevations across the site range from 86 feet to 96.5 feet.

4. None of the compounds targeted by the EPA Method 8021B or TPH 8015 DRO analysis were detected in excess of laboratory detection limits in the sample collected from monitoring well EMW2.
5. Select petroleum constituents were detected in samples collected from monitoring wells MW1, EMW1, and EMW3, at concentrations exceeding VGES.
6. No free product was present in the monitoring wells sampled on December 1, 2000.
7. The only receptor believed to be at potential risk from subsurface petroleum contamination at the site are utility corridors. If any utility corridors are present along Nesti Road, to the north of the site, they may act as a preferential pathway for contaminant migration. Given the distance between the source area and Nesti Road, this risk is considered minimal.
8. The area surrounding the closed-in-place motor oil UST at the site is paved, reducing the potential for exposure to petroleum contamination through dermal contact with soils or inhalation of vapors.

V. RECOMMENDATIONS

Based on the results of this site investigation, Griffin presents the following recommendations:

- 1) A confirmatory round of groundwater sampling should be conducted. During the sampling event, all six of the on-site monitoring wells should be gauged and sampled for VOCs via EPA Method 8021B and TPH via 8015 DRO. *8260 requested in 2/18/00 approved (the)* ✓
- 2) A file review should be conducted at VTDEC offices in Waterbury, Vermont, in order to obtain well logs for the previously installed monitoring wells at the site. These logs will provide information with respect to subsurface geology and monitoring well construction, which would assist in the determination of groundwater flow direction in the site vicinity. ✓
- 3) A utility survey should be conducted to determine whether utility corridors exist in the vicinity of UST #1, which may provide a pathway for contaminant migration from the site. ✓

VI. REFERENCES

1. Griffin International, Inc., *Work Plan and Cost Estimate for Investigation of Subsurface Petroleum Contamination at Mountainview Mitsubishi*, August, 1999.

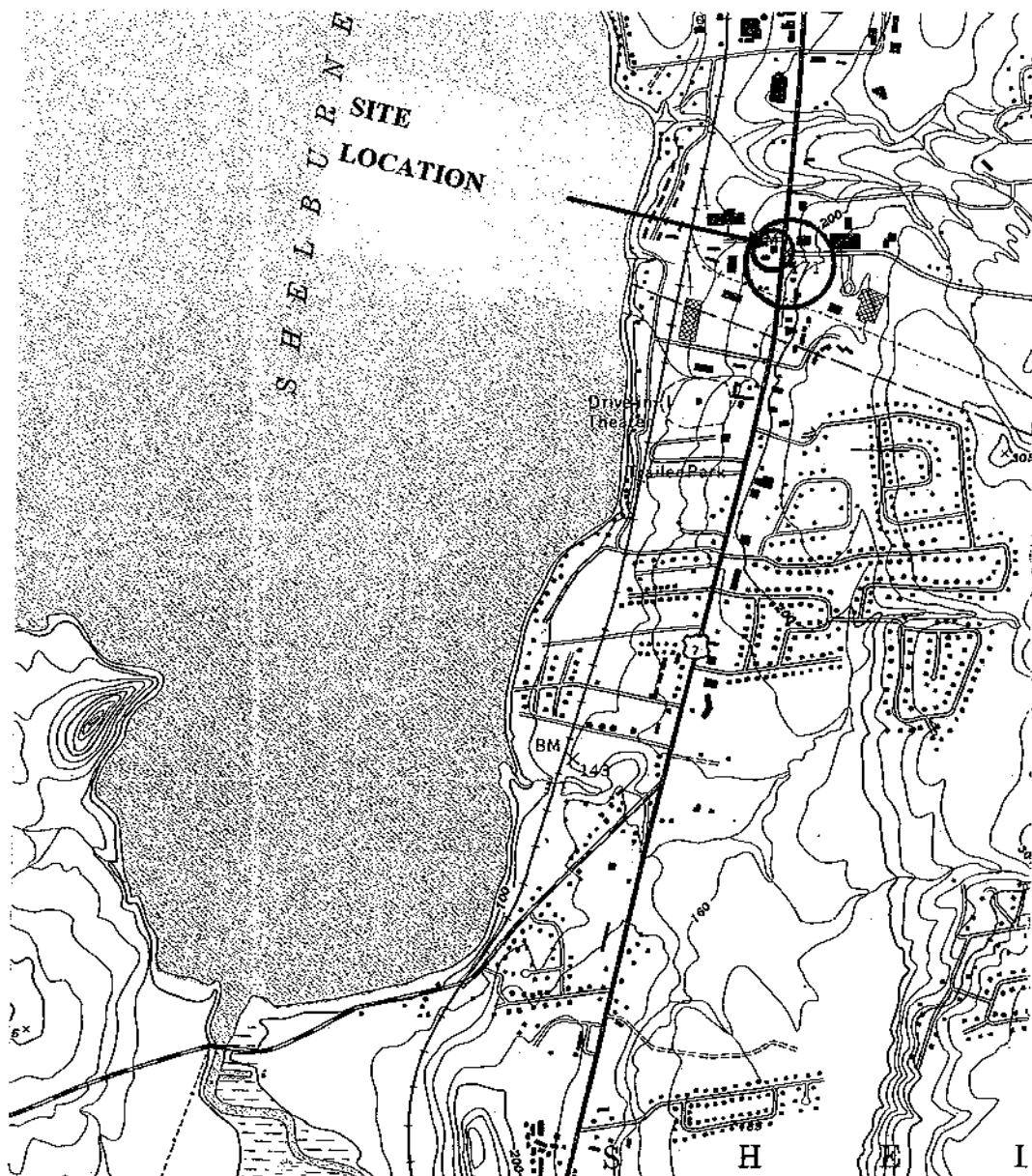


2. Vermont Department of Environmental Conservation. Closed Sites List. September, 2000.
3. Doll, Charles G., ed., 1970, *Surficial Geologic Map of Vermont*, State of Vermont.
4. Doll, Charles G., ed., 1961, *Centennial Geologic Map of Vermont*, State of Vermont.
5. USGS 7.5 Minute Topographic Quadrangle Map. 1987, photo-revised 1987. Burlington, Vermont.



APPENDIX A

Maps



Job #: 89941594



Burlington Mitsubishi (formerly Mountainview Mitsubishi)

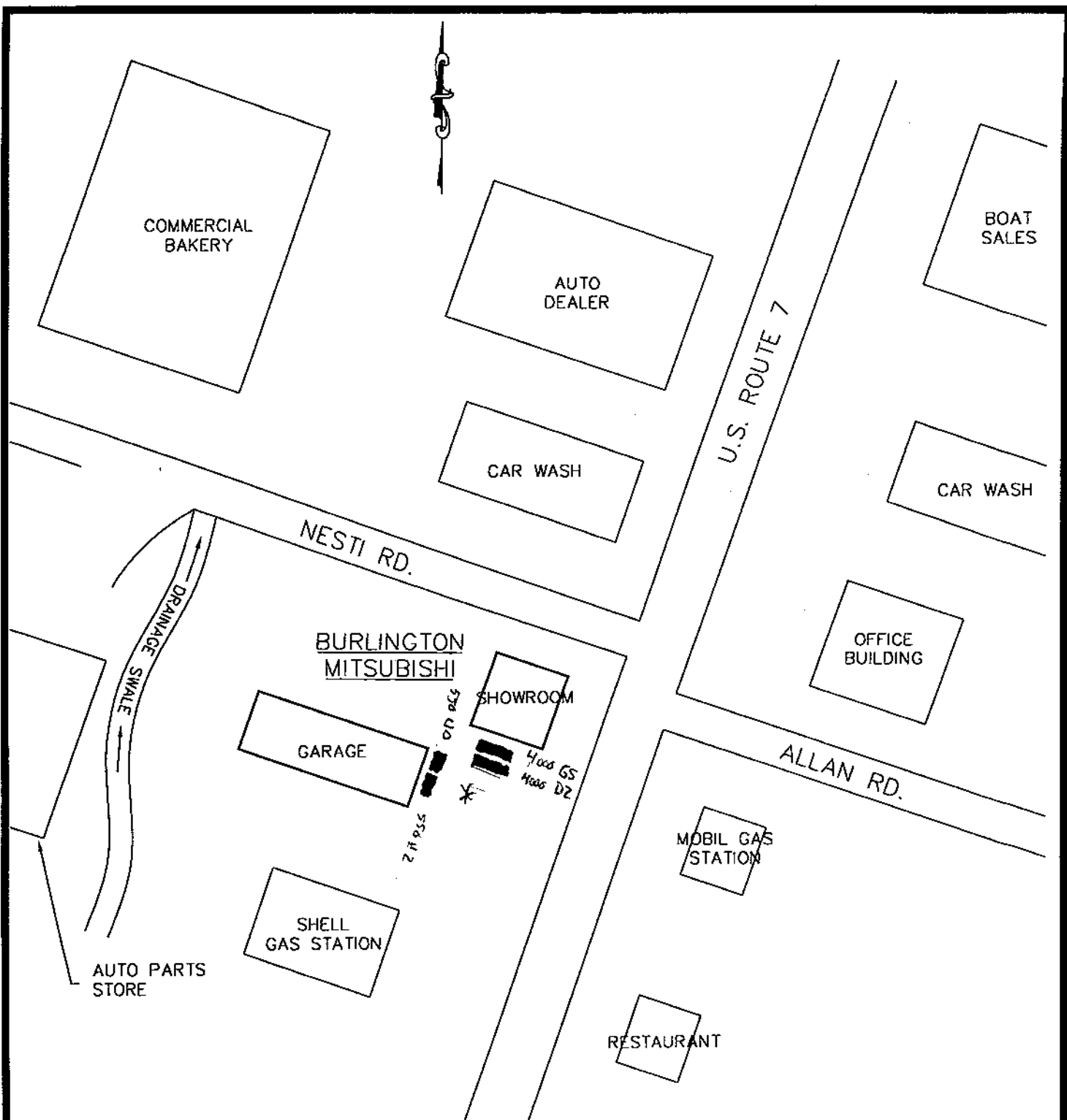
1835 Shelburne Road, South Burlington, VT

Site Location Map

01/25/2001

Source: USGS Topographic Quad. Burlington, VT.
1948, photorevised 1987.

Scale:
1" = 2000'



* FORMER TANKS IDENTIFIED FROM 12/30/89 MARK COLEMAN
 UST PULL REPORT GWN 2/26/01

JOB #: 89941594
 VTDEC SITE #: 99-2633



BURLINGTON MITSUBISHI
 (FORMERLY MOUNTAINVIEW MITSUBISHI)
 SOUTH BURLINGTON, VERMONT

AREA MAP

DATE: 1/26/01

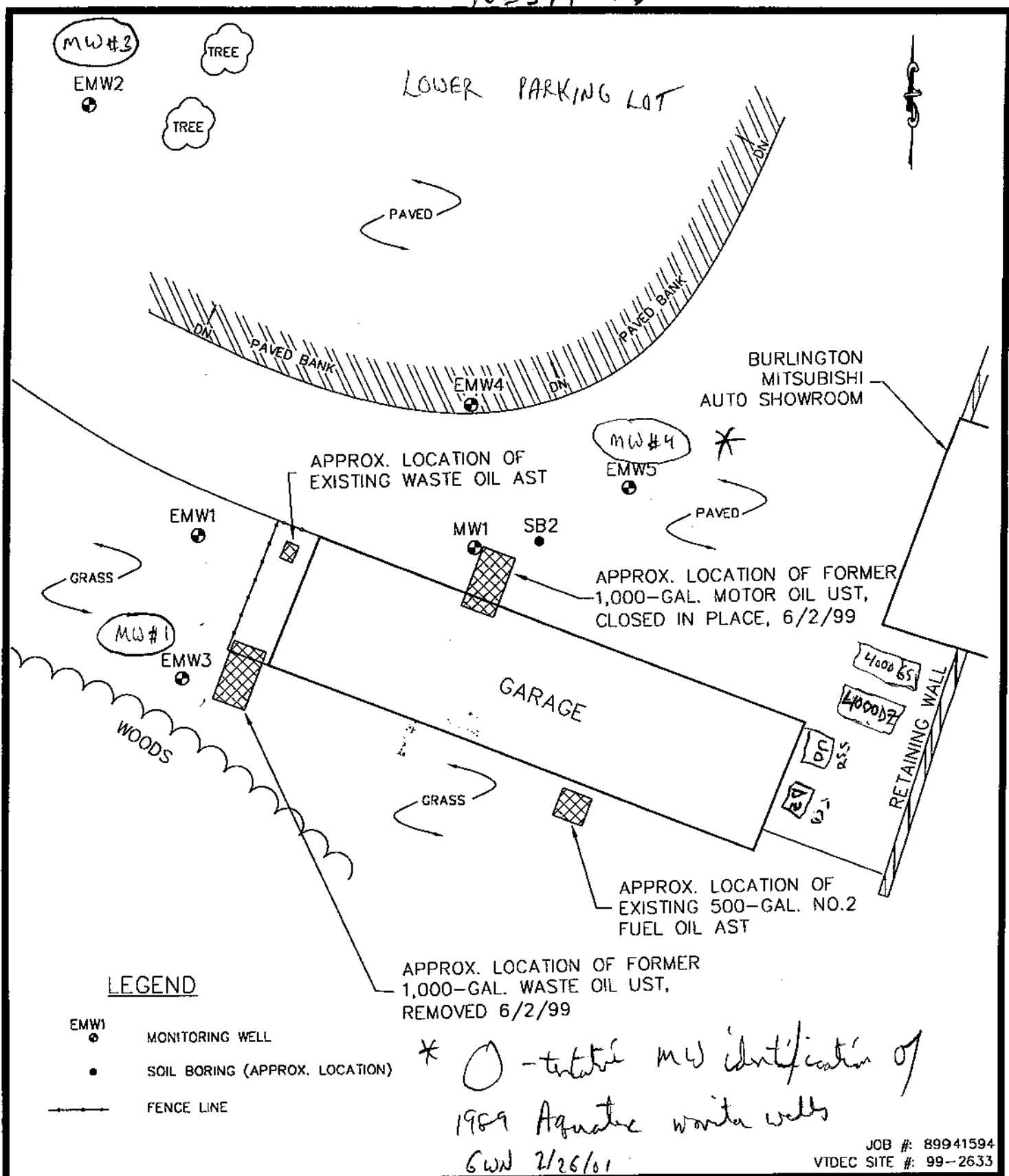
DWG. #: 1

SCALE: N.T.S.

DRN.: MP

APP.: BS

NESTI RD



BURLINGTON MITSUBISHI
(FORMERLY MOUNTAINVIEW MITSUBISHI)
SOUTH BURLINGTON, VERMONT

SITE MAP

DATE: 1/26/01

DWG. #: 2

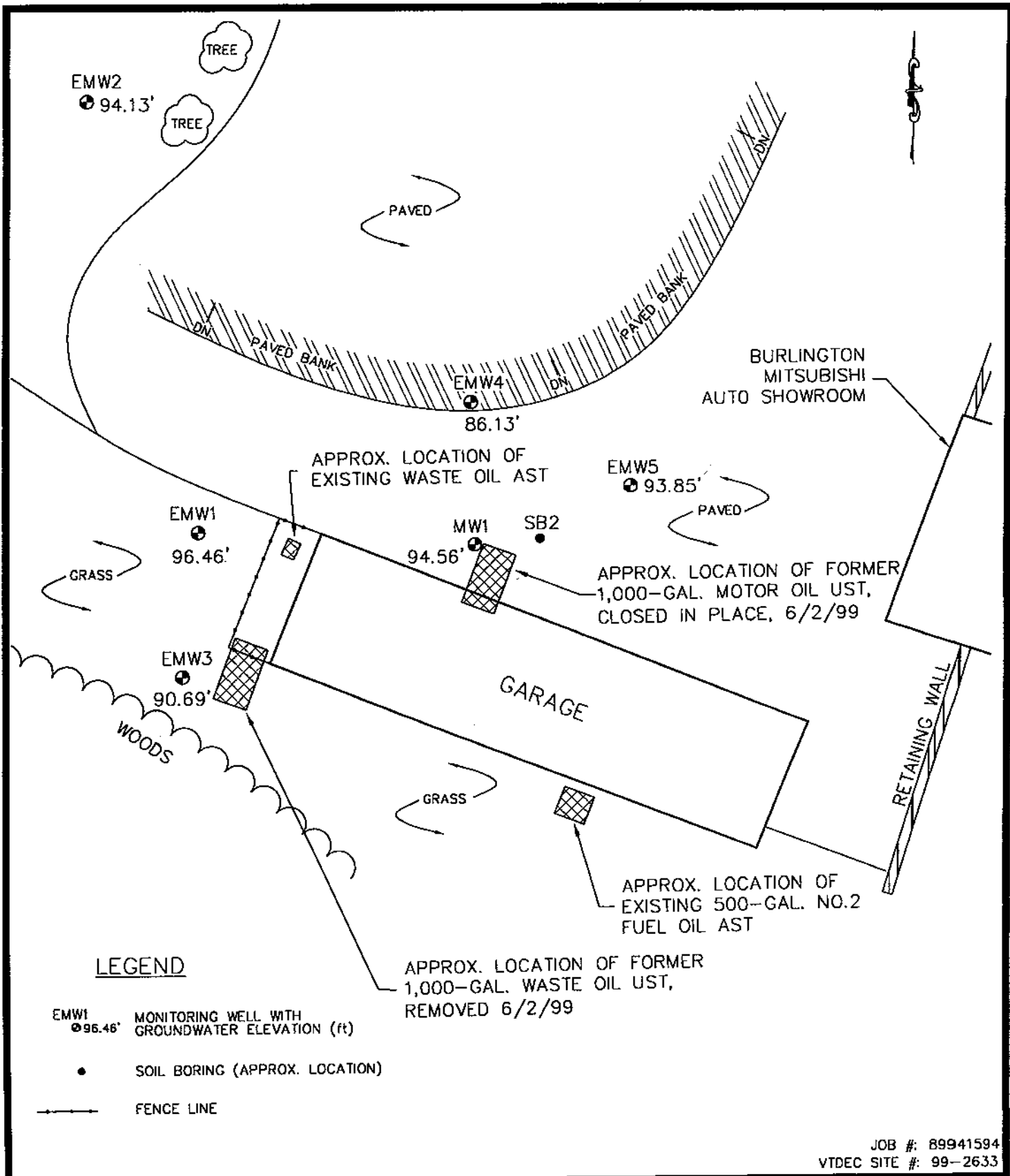
SCALE: 1" = 30'

DRN.: MP

APP.: BS

JOB #: 89941594

VTDEC SITE #: 99-2633



BURLINGTON MITSUBISHI
(FORMERLY MOUNTAINVIEW MITSUBISHI)
SOUTH BURLINGTON, VERMONT

GROUNDWATER ELEVATION MAP

MEASURED: 12/1/01

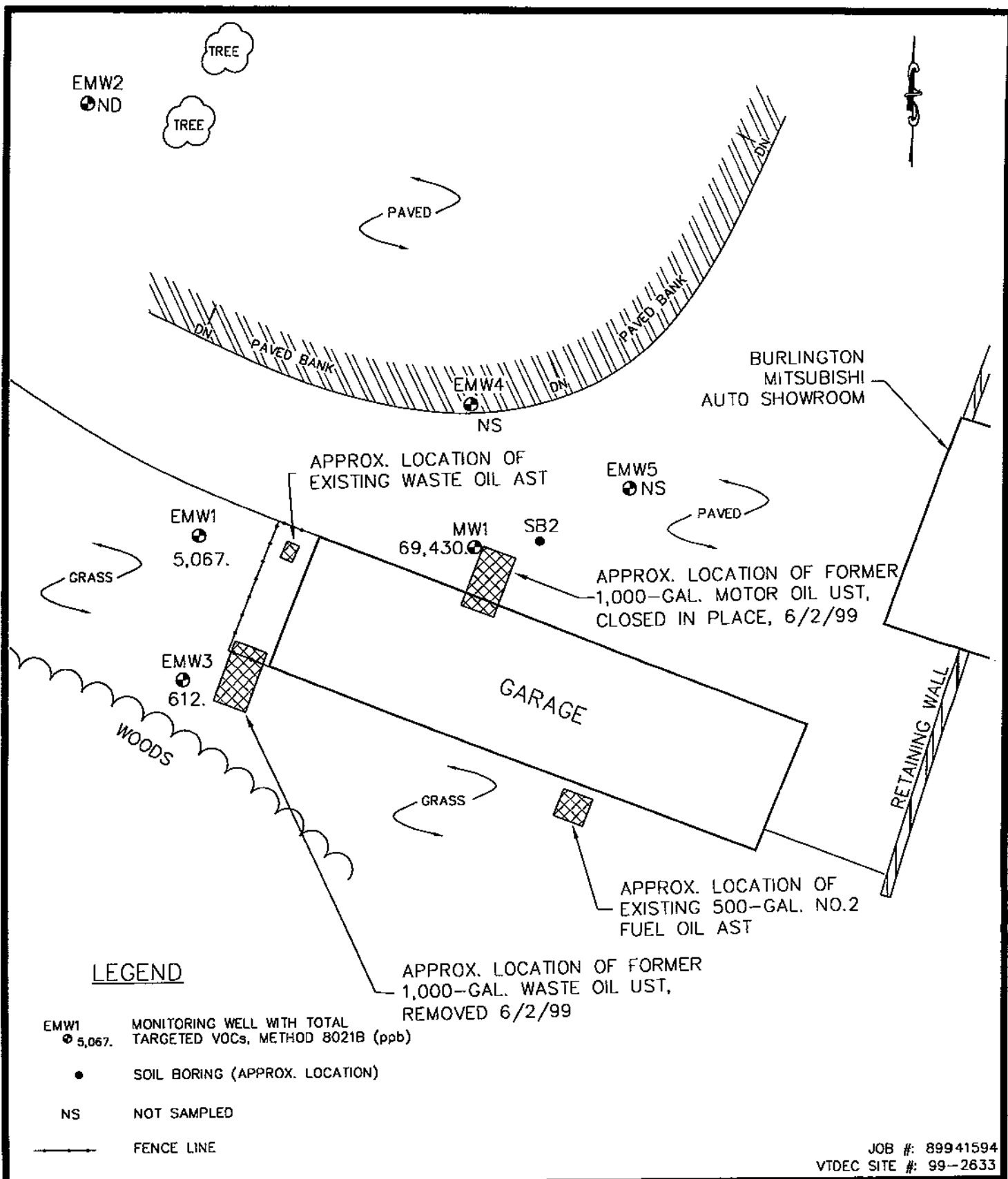
DATE: 1/26/01

DWG. #: 3

SCALE: 1" = 30'

DRN.: MP

APP.: BS



BURLINGTON MITSUBISHI
(FORMERLY MOUNTAINVIEW MITSUBISHI)
SOUTH BURLINGTON, VERMONT

CONTAMINANT CONCENTRATION MAP

SAMPLED: 12/1/01

DATE: 1/26/01

DWG. #: 4

SCALE: 1" = 30'

DRN.: MP

APP.: BS



APPENDIX B

Boring Log and Well Construction Diagrams

BORING LOG AND WELL CONSTRUCTION DIAGRAM

Well No: SB1/MW1



Burlington Mitsubishi (formerly Mountainview Mitsubishi)

South Burlington, Vermont

Griffin Project #: 89941594

Drilled by: Griffin International

Driller: Gerry Adams

Supervised by: RH

Logged by: RH

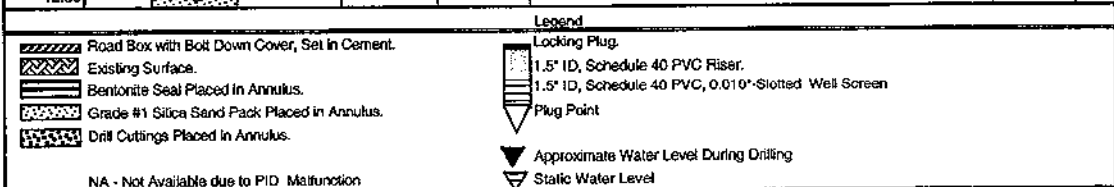
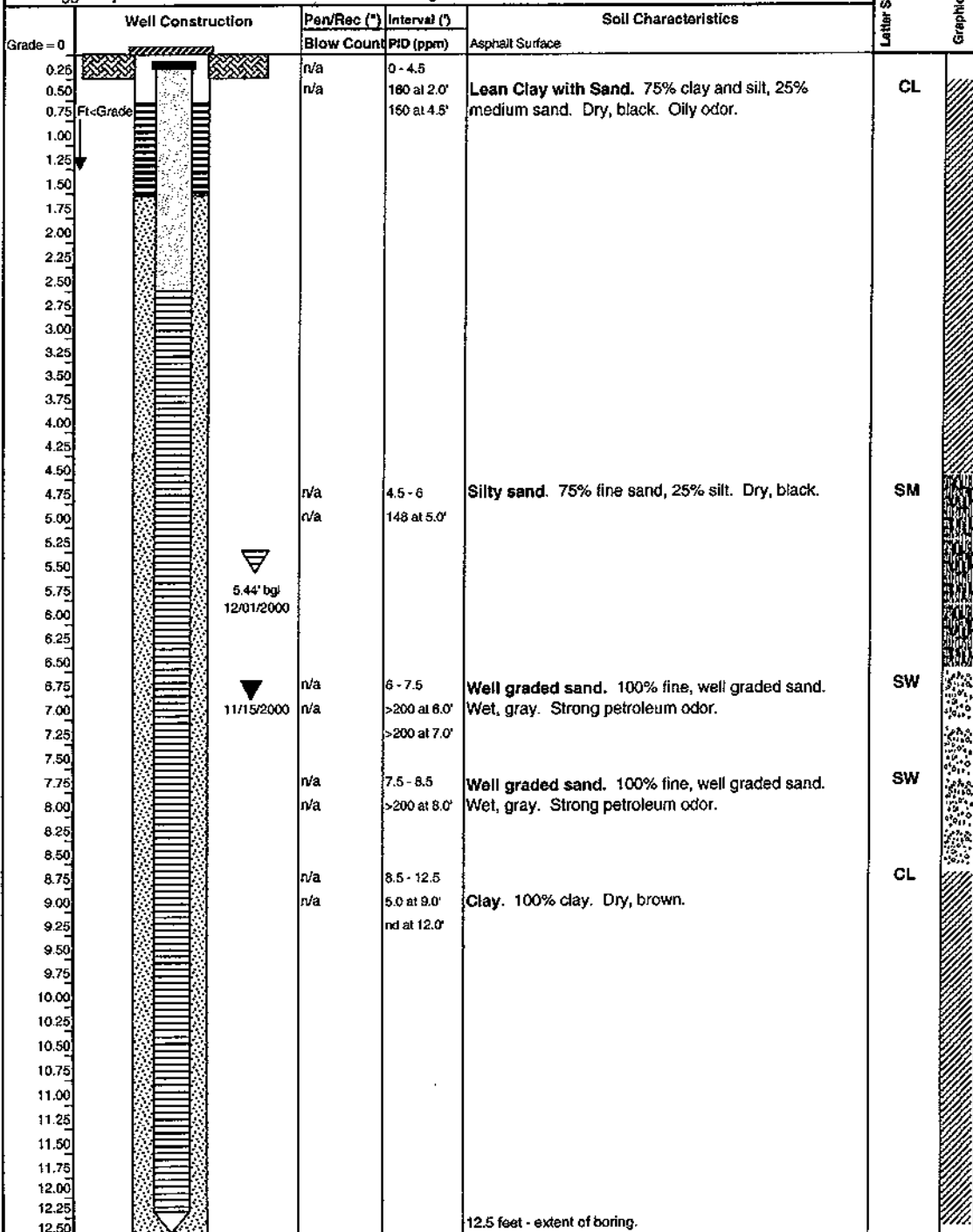
Date Installed: 11/15/2000

Drilling Method: Vibratory Direct Push

Boring Diameter: 2.75"

Development Method: Peristaltic Pump

Screened Length: 10 Ft.



BORING LOG AND WELL CONSTRUCTION DIAGRAM

Well No: SB2

Burlington Mitsubishi (formerly Mountainview Mitsubishi)

South Burlington, Vermont



Griffin Project #: 89941594

Date installed: 11/15/2000

Drilled by: Griffin International

Drilling Method: Vibratory Direct Push

Driller: Gerry Adams

Boring Diameter: 2.75"

Supervised by: RH

Development Method: Peristaltic Pump

Logged by: RH

Screened Length: not completed as a monitoring well

Grade = 0	Well Construction	Pen/Rec (*)	Interval (')	Soil Characteristics	Letter Symbol	Graphic Symbol
		Blow Count	PID (ppm)			
0.25		n/a	0 - 5	Silty sand. 50% fine sand, 50% silt. Dry to moist, brown-gray. Faint petroleum odor.	SM	
0.50		n/a	16 at 3.0'			
0.75						
1.00						
1.25						
1.50						
1.75						
2.00						
2.25						
2.50						
2.75						
3.00						
3.25						
3.50						
3.75						
4.00						
4.25						
4.50		n/a	5 - 5.5	Lean clay with sand. 90% clay, 10% fine sand. Moist, gray.	CL	
4.75		n/a	>200			
5.00						
5.25						
5.50						
5.75		n/a	5.5 - 7			
6.00		n/a	>200			
6.25						
6.50						
6.75						
7.00		n/a	7 - 7.5	Clayey sand. 80% clay, 20% fine sand. Wet, gray.	SC	
7.25		n/a	>200			
7.50						
7.75		n/a	7.5 - 8			
8.00		n/a	>200			
8.25						
8.50		n/a	8 - 9			
8.75		n/a	>200			
9.00						
9.25		n/a	9 - 10	Lean clay with sand. 90% clay, 10% fine sand. Dry, brown.	CL	
9.50		n/a	5			
9.75						
10.00						
10.25						
10.50						
10.75						
11.00						
11.25						
11.50						
11.75						
12.00						
12.25						
12.50						

Legend

- Road Box with Bolt Down Cover, Set in Cement.
- Existing Surface.
- Bentonite Seal Placed in Annulus.
- Grade #1 Silica Sand Pack Placed in Annulus.
- Drill Cuttings Placed in Annulus.

- Locking Plug.
- 1.5" ID, Schedule 40 PVC Riser.
- 1.5" ID, Schedule 40 PVC, 0.010"-Slotted Well Screen
- Plug Point

- Approximate Water Level During Drilling
- Static Water Level

NA - Not Available due to PID Malfunction

10 feet - extent of boring.



APPENDIX C

Liquid Level Monitoring Data

Griffin International, Inc.

Burlington Mitsubishi (formerly Mountainview Mitsubishi)
South Burlington, Vermont

Summary of Liquid Level Data

Measurement Date: December 1, 2000

Well I.D.	Top of Casing Elevation	Depth To Product	Depth To Water	Corrected Depth To Water	Corrected Water Table Elevation
MW1	100.00		5.44	5.44	94.56
EMW1	100.11		3.65	3.65	96.46
EMW2*	101.56		7.43	7.43	94.13
EMW3	96.15		5.46	5.46	90.69
EMW4	89.60		3.47	3.47	86.13
EMW5	96.18		2.33	2.33	93.85

All Values Reported in Feet

Top-of-Casing Elevations Measured in Feet Relative to MW-1 set at 100.00'

Monitoring Well Locations Surveyed By Griffin International, Inc. on 12/1/2000

* Top-of-Casing for EMW2 is approximately 2.4 feet above surface grade.



APPENDIX D

Groundwater Quality Summary Data

Groundwater Quality Summary Data

Sample Date: December 1, 2000

PARAMETER	MW1	EMW1	EMW2	EMW3	EMW4	EMW5	VGES
Benzene	20,100	46.8	ND(1.0)	320.	Well	Well	5
Toluene	24,600	ND(10.0)	ND(1.0)	13.5	Not	Not	1,000
Ethylbenzene	3,840	965.	ND(1.0)	85.4	Sampled	Sampled	700
Xylenes	17,600	2,660.	ND(1.0)	86.1			10,000
Total BTEX	66,140.	3,672.	ND	505.			-
1,3,5 Trimethyl Benzene	700.	299.	ND(1.0)	13.9			4
1,2,4 Trimethyl Benzene	2,590	1,010.	ND(1.0)	92.6			5
Napthalene	ND(200)	86.1	ND(1.0)	ND(5.0)			20
MTBE	ND(2000)	ND(100)	ND(100)	ND(50)			40
Total Targeted VOCs	69,430.	5,067.	ND	612.			-
TPH (mg/L)	53.7	8.62	ND(0.40)	2.34			-

TBQ(): Trace below quantitation limit (quantitation limit)

ND(): Not detected (detection limit)

NT: Not tested

All values in ug/L (ppb) unless noted

Analysis by EPA Method 8021B, except for TPH by EPA Method 8015 DRO

VGES = Vermont Groundwater Enforcement Standards (Vermont Groundwater Protection Rule and Strategy, 1/20/2000)

>VGES

Quality Assurance and Control Samples
Sample Date: December 1, 2000

PARAMETER	Trip Blank	Duplicate (EMW2)	VGES
Benzene	ND(1)	ND(1)	5
Toluene	ND(1)	ND(1)	1,000
Ethylbenzene	ND(1)	ND(1)	700
Xylenes	ND(1)	ND(1)	10,000
Total BTEX	ND	ND	
1,3,5 Trimethyl Benzene	ND(1)	ND(1)	4
1,2,4 Trimethyl Benzene	ND(1)	ND(1)	5
Napthalene	ND(1)	ND(1)	20
MTBE	ND(10)	ND(10)	40
Total Targeted VOCs	ND	ND	
TPH (mg/L)	NT	NT	-

Analysis by EPA Method 8021B, except for TPH by EPA Method 8015 DRO

All values in ug/L (ppb) unless noted

ND() = None detected (detection limit)

NT = Not tested

TBQ() = Trace below quantitation (detection limit)

VGES = Vermont Groundwater Enforcement Standards (Vermont Groundwater Protection Rule and Strategy, 1/20/2000)

VGES

Quality Assurance and Control Samples
Sample Date: December 1, 2000

PARAMETER	Trip Blank	Duplicate (EMW2)	VGES
Benzene	ND(1)	ND(1)	5
Toluene	ND(1)	ND(1)	1,000
Ethylbenzene	ND(1)	ND(1)	700
Xylenes	ND(1)	ND(1)	10,000
Total BTEX	ND	ND	
1,3,5 Trimethyl Benzene	ND(1)	ND(1)	4
1,2,4 Trimethyl Benzene	ND(1)	ND(1)	5
Napthalene	ND(1)	ND(1)	20
MTBE	ND(10)	ND(10)	40
Total Targeted VOCs	ND	ND	
TPH (mg/L)	NT	NT	-

Analysis by EPA Method 8021B, except for TPH by EPA Method 8015 DRO

All values in ug/L (ppb) unless noted

ND() = None detected (detection limit)

NT = Not tested

TBQ() = Trace below quantitation (detection limit)

VGES = Vermont Groundwater Enforcement Standards (Vermont Groundwater Protection Rule and Strategy, 1/20/2000)

>VGES



APPENDIX E

Laboratory Analysis Reports



ENDYNE, INC.

Laboratory Services

160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

Griffin International
PO Box 943
Williston, VT 05495
Attn: Beth Stopford

PROJECT: MtnView Mitsubishi/#89941594
ORDER ID: 10496
RECEIVE DATE: December 4, 2000
REPORT DATE: December 12, 2000

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which include matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits, unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures



ENDYNE, INC.

Laboratory Services

160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

CLIENT: Griffin International

ORDER ID: 10496

PROJECT: MtnView Mitsubishi/#89941594

DATE RECEIVED: December 4, 2000

REPORT DATE: December 12, 2000

SAMPLER: RB/DT

Site: Trip Blank Ref. Number: 166483 Anal. Method: SW 8021B Date Sampled: 12/1/00 Time Sampled: 7:50 AM Analysis Date: 12/7/00 Analyst: 555	Site: EMW #3 Ref. Number: 166485 Anal. Method: SW 8021B Date Sampled: 12/1/00 Time Sampled: 12:35 PM Analysis Date: 12/8/00 Analyst: 555	Site: Duplicate Ref. Number: 166487 Anal. Method: SW 8021B Date Sampled: 12/1/00 Time Sampled: 12:39 PM Analysis Date: 12/7/00 Analyst: 555																																																																		
<table><tr><td>Parameter</td><td>Results ug/L</td></tr><tr><td>MTBE</td><td>< 10.0</td></tr><tr><td>Benzene</td><td>< 1.0</td></tr><tr><td>Toluene</td><td>< 1.0</td></tr><tr><td>Ethylbenzene</td><td>< 1.0</td></tr><tr><td>Xylenes, Total</td><td>< 1.0</td></tr><tr><td>1,3,5 Trimethyl Benzene</td><td>< 1.0</td></tr><tr><td>1,2,4 Trimethyl Benzene</td><td>< 1.0</td></tr><tr><td>Naphthalene</td><td>< 1.0</td></tr><tr><td>UIP's</td><td>0.</td></tr><tr><td>Surrogate 1</td><td>97.0%</td></tr></table>	Parameter	Results ug/L	MTBE	< 10.0	Benzene	< 1.0	Toluene	< 1.0	Ethylbenzene	< 1.0	Xylenes, Total	< 1.0	1,3,5 Trimethyl Benzene	< 1.0	1,2,4 Trimethyl Benzene	< 1.0	Naphthalene	< 1.0	UIP's	0.	Surrogate 1	97.0%	<table><tr><td>Parameter</td><td>Results ug/L</td></tr><tr><td>MTBE</td><td>< 50.0</td></tr><tr><td>Benzene</td><td>320.</td></tr><tr><td>Toluene</td><td>13.5</td></tr><tr><td>Ethylbenzene</td><td>85.4</td></tr><tr><td>Xylenes, Total</td><td>86.1</td></tr><tr><td>1,3,5 Trimethyl Benzene</td><td>13.9</td></tr><tr><td>1,2,4 Trimethyl Benzene</td><td>92.6</td></tr><tr><td>Naphthalene</td><td>< 5.0</td></tr><tr><td>UIP's</td><td>7.</td></tr><tr><td>Surrogate 1</td><td>96.0%</td></tr></table>	Parameter	Results ug/L	MTBE	< 50.0	Benzene	320.	Toluene	13.5	Ethylbenzene	85.4	Xylenes, Total	86.1	1,3,5 Trimethyl Benzene	13.9	1,2,4 Trimethyl Benzene	92.6	Naphthalene	< 5.0	UIP's	7.	Surrogate 1	96.0%	<table><tr><td>Parameter</td><td>Results ug/L</td></tr><tr><td>MTBE</td><td>< 10.0</td></tr><tr><td>Benzene</td><td>< 1.0</td></tr><tr><td>Toluene</td><td>< 1.0</td></tr><tr><td>Ethylbenzene</td><td>< 1.0</td></tr><tr><td>Xylenes, Total</td><td>< 1.0</td></tr><tr><td>1,3,5 Trimethyl Benzene</td><td>< 1.0</td></tr><tr><td>1,2,4 Trimethyl Benzene</td><td>< 1.0</td></tr><tr><td>Naphthalene</td><td>< 1.0</td></tr><tr><td>UIP's</td><td>0.</td></tr><tr><td>Surrogate 1</td><td>99.0%</td></tr></table>	Parameter	Results ug/L	MTBE	< 10.0	Benzene	< 1.0	Toluene	< 1.0	Ethylbenzene	< 1.0	Xylenes, Total	< 1.0	1,3,5 Trimethyl Benzene	< 1.0	1,2,4 Trimethyl Benzene	< 1.0	Naphthalene	< 1.0	UIP's	0.	Surrogate 1	99.0%
Parameter	Results ug/L																																																																			
MTBE	< 10.0																																																																			
Benzene	< 1.0																																																																			
Toluene	< 1.0																																																																			
Ethylbenzene	< 1.0																																																																			
Xylenes, Total	< 1.0																																																																			
1,3,5 Trimethyl Benzene	< 1.0																																																																			
1,2,4 Trimethyl Benzene	< 1.0																																																																			
Naphthalene	< 1.0																																																																			
UIP's	0.																																																																			
Surrogate 1	97.0%																																																																			
Parameter	Results ug/L																																																																			
MTBE	< 50.0																																																																			
Benzene	320.																																																																			
Toluene	13.5																																																																			
Ethylbenzene	85.4																																																																			
Xylenes, Total	86.1																																																																			
1,3,5 Trimethyl Benzene	13.9																																																																			
1,2,4 Trimethyl Benzene	92.6																																																																			
Naphthalene	< 5.0																																																																			
UIP's	7.																																																																			
Surrogate 1	96.0%																																																																			
Parameter	Results ug/L																																																																			
MTBE	< 10.0																																																																			
Benzene	< 1.0																																																																			
Toluene	< 1.0																																																																			
Ethylbenzene	< 1.0																																																																			
Xylenes, Total	< 1.0																																																																			
1,3,5 Trimethyl Benzene	< 1.0																																																																			
1,2,4 Trimethyl Benzene	< 1.0																																																																			
Naphthalene	< 1.0																																																																			
UIP's	0.																																																																			
Surrogate 1	99.0%																																																																			
Site: MW #1 Ref. Number: 166484 Anal. Method: SW 8021B Date Sampled: 12/1/00 Time Sampled: 12:06 PM Analysis Date: 12/7/00 Analyst: 555	Site: EMW #2 Ref. Number: 166486 Anal. Method: SW 8021B Date Sampled: 12/1/00 Time Sampled: 12:39 PM Analysis Date: 12/7/00 Analyst: 555	Site: EMW #1 Ref. Number: 166488 Anal. Method: SW 8021B Date Sampled: 12/1/00 Time Sampled: 12:46 PM Analysis Date: 12/8/00 Analyst: 555																																																																		
<table><tr><td>Parameter</td><td>Results ug/L</td></tr><tr><td>MTBE</td><td>< 2,000.</td></tr><tr><td>Benzene</td><td>20,100.</td></tr><tr><td>Toluene</td><td>24,600.</td></tr><tr><td>Ethylbenzene</td><td>3,840.</td></tr><tr><td>Xylenes, Total</td><td>17,600.</td></tr><tr><td>1,3,5 Trimethyl Benzene</td><td>700.</td></tr><tr><td>1,2,4 Trimethyl Benzene</td><td>2,590.</td></tr><tr><td>Naphthalene</td><td>< 200.</td></tr><tr><td>UIP's</td><td>5.</td></tr><tr><td>Surrogate 1</td><td>101.0%</td></tr></table>	Parameter	Results ug/L	MTBE	< 2,000.	Benzene	20,100.	Toluene	24,600.	Ethylbenzene	3,840.	Xylenes, Total	17,600.	1,3,5 Trimethyl Benzene	700.	1,2,4 Trimethyl Benzene	2,590.	Naphthalene	< 200.	UIP's	5.	Surrogate 1	101.0%	<table><tr><td>Parameter</td><td>Results ug/L</td></tr><tr><td>MTBE</td><td>< 10.0</td></tr><tr><td>Benzene</td><td>< 1.0</td></tr><tr><td>Toluene</td><td>< 1.0</td></tr><tr><td>Ethylbenzene</td><td>< 1.0</td></tr><tr><td>Xylenes, Total</td><td>< 1.0</td></tr><tr><td>1,3,5 Trimethyl Benzene</td><td>< 1.0</td></tr><tr><td>1,2,4 Trimethyl Benzene</td><td>< 1.0</td></tr><tr><td>Naphthalene</td><td>< 1.0</td></tr><tr><td>UIP's</td><td>0.</td></tr><tr><td>Surrogate 1</td><td>99.0%</td></tr></table>	Parameter	Results ug/L	MTBE	< 10.0	Benzene	< 1.0	Toluene	< 1.0	Ethylbenzene	< 1.0	Xylenes, Total	< 1.0	1,3,5 Trimethyl Benzene	< 1.0	1,2,4 Trimethyl Benzene	< 1.0	Naphthalene	< 1.0	UIP's	0.	Surrogate 1	99.0%	<table><tr><td>Parameter</td><td>Results ug/L</td></tr><tr><td>MTBE</td><td>< 100.</td></tr><tr><td>Benzene</td><td>46.8</td></tr><tr><td>Toluene</td><td>< 10.0</td></tr><tr><td>Ethylbenzene</td><td>965.</td></tr><tr><td>Xylenes, Total</td><td>2,660.</td></tr><tr><td>1,3,5 Trimethyl Benzene</td><td>299.</td></tr><tr><td>1,2,4 Trimethyl Benzene</td><td>1,010.</td></tr><tr><td>Naphthalene</td><td>86.1</td></tr><tr><td>UIP's</td><td>> 10.</td></tr><tr><td>Surrogate 1</td><td>105.0%</td></tr></table>	Parameter	Results ug/L	MTBE	< 100.	Benzene	46.8	Toluene	< 10.0	Ethylbenzene	965.	Xylenes, Total	2,660.	1,3,5 Trimethyl Benzene	299.	1,2,4 Trimethyl Benzene	1,010.	Naphthalene	86.1	UIP's	> 10.	Surrogate 1	105.0%
Parameter	Results ug/L																																																																			
MTBE	< 2,000.																																																																			
Benzene	20,100.																																																																			
Toluene	24,600.																																																																			
Ethylbenzene	3,840.																																																																			
Xylenes, Total	17,600.																																																																			
1,3,5 Trimethyl Benzene	700.																																																																			
1,2,4 Trimethyl Benzene	2,590.																																																																			
Naphthalene	< 200.																																																																			
UIP's	5.																																																																			
Surrogate 1	101.0%																																																																			
Parameter	Results ug/L																																																																			
MTBE	< 10.0																																																																			
Benzene	< 1.0																																																																			
Toluene	< 1.0																																																																			
Ethylbenzene	< 1.0																																																																			
Xylenes, Total	< 1.0																																																																			
1,3,5 Trimethyl Benzene	< 1.0																																																																			
1,2,4 Trimethyl Benzene	< 1.0																																																																			
Naphthalene	< 1.0																																																																			
UIP's	0.																																																																			
Surrogate 1	99.0%																																																																			
Parameter	Results ug/L																																																																			
MTBE	< 100.																																																																			
Benzene	46.8																																																																			
Toluene	< 10.0																																																																			
Ethylbenzene	965.																																																																			
Xylenes, Total	2,660.																																																																			
1,3,5 Trimethyl Benzene	299.																																																																			
1,2,4 Trimethyl Benzene	1,010.																																																																			
Naphthalene	86.1																																																																			
UIP's	> 10.																																																																			
Surrogate 1	105.0%																																																																			

41404

Project Name: <i>MOUNTAINVIEW MITSUBISHI</i>		Reporting Address: <i>GRIFFIN</i>		Billing Address: <i>GRIFFIN</i>	
Endyne Order ID: (Lab Use Only)	<i>10496</i>	Company:	Sampler Name: <i>ROB D. DOWT</i>		
	<i>2-0</i>	Contact Name/Phone #:	Phone #:		
	<i>-I</i>	<i>BETH STOPFORD</i>			
	<i>-S</i>				

Ref # (Lab Use Only)	Sample Identification	Matrix	GRAB	COMP	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
166483	TRIP BLANK	H ₂ O	X		07:50	2	40mL		19	HCC	
166484	mw#1				12:06	3			19, 22		
166485	Emw#3				12:35	3					
166486	Emw#2				12:39	3					
166487	DUPLICATE				12:39	2			19		
166488	Emw#1				12:46	3			19, 22		

Relinquished by: <i>[Signature]</i>	Date/Time <i>12/01/00 14:00</i>	Received by: <i>Stacy Benjamin</i>	Date/Time <i>12-4-00 9:50 AM</i>	Received by: <i>A. Loucci</i>	Date/Time <i>12/4/00 10:15</i>
--	------------------------------------	---------------------------------------	-------------------------------------	----------------------------------	-----------------------------------

New York State Project: Yes ☐ No ☒ Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Sulfate	21	1664 TPH/FOG	26	8270 PAH
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	8015 GRO	27	PP13 Metals
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	8015 DRO	28	RCRAS Metals
4	Nitrite N	9	BOD	14	Turbidity	19	8021B	24	8260/8260B	29	
5	Nitrate N	10	Alkalinity	15	Conductivity	20	8010/8020	25	8270 B/N or Acid	30	
31	Metals (As,Is, Total, Diss.) Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Si, Sr, Ti, Tl, V, Zn										
32	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)					33					
34	Other										



ENDYNE, INC.

Laboratory Services

160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

Griffin International
PO Box 943
Williston, VT 05495
Attn: Beth Stopford

PROJECT: MtnView Mitsubishi/#89941594
ORDER ID: 10496
RECEIVE DATE: December 4, 2000
REPORT DATE: December 19, 2000

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which include matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits, unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures

**LABORATORY REPORT**CLIENT: Griffin International
PROJECT: MtnView Mitsubishi/#89941594
REPORT DATE: December 19, 2000ORDER ID: 10496
DATE RECEIVED: December 4, 2000
SAMPLER: RB/DT
ANALYST: 128

Ref. Number: 166484

Site: MW #1

Date Sampled: December 1, 2000 Time: 12:06 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 DRO	53.7	mg/L	SW 8015B	12/12/00

Ref. Number: 166485

Site: EMW #3

Date Sampled: December 1, 2000 Time: 12:35 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 DRO	2.34	mg/L	SW 8015B	12/13/00

Ref. Number: 166486

Site: EMW #2

Date Sampled: December 1, 2000 Time: 12:39 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 DRO	< 0.40	mg/L	SW 8015B	12/12/00

Ref. Number: 166488

Site: EMW #1

Date Sampled: December 1, 2000 Time: 12:46 PM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 DRO	8.62	mg/L	SW 8015B	12/13/00

#8941594

41404

Project Name: <i>MOUNTAINVIEW MITSUBISHI</i>		Reporting Address: <i>GRIFFIN</i>		Billing Address: <i>GRIFFIN</i>	
Endyne Order ID: (Lab Use Only) <i>10494</i>		Company: Contact Name/Phone #: <i>BETH STOPFORD</i>		Sampler Name: <i>ROB D. DONIT.</i> Phone #:	
		<i>2-0</i>			
		<i>-I</i>			
		<i>-S</i>			

Ref # (Lab Use Only)	Sample Identification	Matrix	G R A B	C O M P	Date/Time <i>12-01-00</i>	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
166483	TRIP BLANK	H ₂ O	X		07:50	2	40mL		19	HCL	
166484	mw#1				12:06	3			19, 22		
166485	Emw#3				12:35	3					
166486	Emw#2				12:39	3					
166487	DUPLICATE				12:39	2			19		
166488	Emw#1				12:46	3			19, 22		

Relinquished by: <i>[Signature]</i>	Date/Time <i>12/01/00 14:00</i>	Received by: <i>Stacy Benjamin</i>	Date/Time <i>12-4-00 9:50 AM</i>	Received by: <i>A. Loucci</i>	Date/Time <i>12/4/00 10:15</i>
--	------------------------------------	---------------------------------------	-------------------------------------	----------------------------------	-----------------------------------

New York State Project: Yes ☐ No ☒ Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Sulfate	21	1664 TPH/FOG	26	8270 PAH
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	8015 GRO	27	PP13 Metals
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	8015 DRO	28	RCRA8 Metals
4	Nitrite N	9	BOD	14	Turbidity	19	8021B	24	8260/8260B	29	
5	Nitrate N	10	Alkalinity	15	Conductivity	20	8010/8020	25	8270 B/N or Acid	30	
31	Metals (As,Is, Total, Diss.) Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Si, Sr, Ti, Tl, V, Zn										
32	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)					33					
34	Other										